



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant : Donald F. Hamilton et al.
Serial No. : 08/777,958
Filed : December 24, 1996
Title : VEHICLE TRUNK WOOFER

Art Unit : 2644
Examiner : Daniel Swerdlow

Mail Stop Appeal Brief - Patents

Hon. Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

(i) *Real party in interest.*

The real party in interest is Bose Corporation.

(ii) *Related appeals and interferences.*

Appeal No. 94-2403 in the parent application and Appeal No. 2000-1557 in this application may have a bearing on the Board's decision in the pending appeal.

(iii) *Status of claims.*

Claims 2 and 7 have been canceled. Claims 1, 3-6 and 8-10 being appealed stand rejected under 35 U.S.C. §112, first paragraph as non enabling and as indefinite. Claims 1, 3 and 4 also stand rejected under 35 U.S.C. §102(a) as anticipated by Ziffer (May). Claims 1, 3 and 4 also stand rejected under 35 U.S.C. §103(a) as being unpatentable over Ziffer (May) as a primary reference in view of Bazooka as a secondary reference. Claims 1, 3-6 and 8-10 also stand rejected under 35 U.S.C. §103(a) as being unpatentable over Ziffer (March) as a primary reference in view of Bazooka as a secondary reference.

(iv) *Status of amendments.*

Amendments E and F after final rejection to place the application in a better form for appeal are believed to have been entered.

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(v) *Summary of claimed subject matter.*

The invention comprises an audio speaker system for a vehicle having a passenger compartment, a spare tire compartment, a trunk having a trunk floor, a dividing portion and a rear deck. The dividing portion, such as 11, (FIGS. 1 & 2) and rear deck, such as 3, divide the trunk, such as 7, and the passenger compartment of vehicle 1. The audio speaker system comprises at least one low frequency speaker, such as 9, disposed within the trunk of the vehicle at the trunk rear in a location spaced from the passenger compartment by the portion of the trunk extending to the front of the vehicle such that the at least one speaker is clear of the rear deck, above the trunk floor and outside the spare tire compartment. The at least one speaker is disposed in a rearward section of the trunk occupying negligible useful trunk volume to cause a smaller decrease in calculated trunk volume than would occur with the at least one speaker mounted in the rear deck, preferably being disposed in a rear trunk corner at the rear of the vehicle and mounted in an enclosure. The vehicle audio speaker system is preferably constructed and arranged to be free of an undesirable peak in the rear seat frequency response of the vehicle between 80-100 Hz and free of an undesirable hole between 60-80 Hz in the front seat frequency response of the vehicle. The rear deck, such as 3, is preferably free of speaker holes. Page 2, line 11-page 3, line 25.

(vi) *Grounds of rejection to be reviewed on appeal.*

1. Whether claims 1, 3 and 8-10 are not enabled when the specification plainly provides enablement for the at least one speaker occupying negligible useful trunk volume to cause a smaller decrease in calculated trunk volume than would occur with the at least one speaker mounted in the rear deck, and enablement was never questioned by any Examiner or Board Member in two appeals for over a decade during the prosecution of the parent application and this continuation.

2. Whether claims 1, 3 and 8-10 were properly rejected under 35 U.S.C. §112, second paragraph, as indefinite when the claims positively recite the at least one speaker disposed in a rearward section of the trunk occupying negligible useful trunk volume to cause a smaller decrease in calculated trunk volume than would occur with the at least on speaker mounted in the rear deck found to be definite in the Board decision that is the law of the case here.

3. Whether claims 1, 3 and 4 were properly rejected under 35 U.S.C. §102(a) as anticipated by Ziffer (May) (Car Audio and Electronics, May 1991) when the reference fails to disclose each and every element in these claims arranged as in the claims.

4. Whether claims 1 and 4-6 were properly rejected under 35 U.S.C. §102(b) as anticipated by Ziffer (March) when the reference fails to disclose each and every element in these claims arranged as in these claims.

5. Whether claims 1, 3 and 4 were properly rejected under 35 U.S.C. §103(a) as being unpatentable over Ziffer (May) as a primary reference in view of Bazooka as a secondary reference when it is impossible to combine these reference to meet the terms of the rejected claims and the references fail to suggest the desirability of combining what is there disclosed to meet the terms of these claims.

6. Whether claims 1, 3, 4 and 7-10 were properly rejected under 35 U.S.C. §103(a) as being unpatentable over Ziffer (March) as a primary reference in view of Bazooka as a secondary reference when it is impossible to combine the references to meet the limitations of these claims, and the references fail to suggest the desirability of combining what is there disclosed to meet the limitations of these claims.

(vii) *Argument.*

I. IN A PROSECUTION THAT HAS INCLUDED THREE APPEALS AND TWO DECISIONS OF THE BOARD, NO BOARD MEMBER OR PRIOR EXAMINER QUESTIONED THE ENABLEMENT OF THE REJECTED CLAIMS, AND THE SPECIFICATION CLEARLY ENABLES THE SPEAKER OCCUPYING NEGLIGIBLE USEFUL TRUNK VOLUME TO CAUSE A SMALLER DECREASE IN CALCULATED TRUNK VOLUME THAN WOULD OCCUR WITH THE AT LEAST ONE SPEAKER MOUNTED IN THE REAR DECK.

The final action states:

2. Claims 2, 3 and 7 through 10 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for an audio speaker system according to Claim 1 wherein the speaker is disposed in the rearward section of the trunk, does not reasonably provide enablement for the speaker occupying negligible useful trunk volume to cause a smaller decrease in calculated trunk volume than would occur with said one speaker mounted in the rear deck. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. Specifically, the inventions of Claims 2

and 7 require a low frequency speaker of sufficiently small size and regular shape to occupy negligible space by fitting into a rear trunk corner as depicted in applicant's Figures 1, 2 and 6. This requires a low frequency speaker the approximate size and shape of a standard brick. At the time of the invention, low frequency speakers of this size and shape were not known to those of ordinary skill in the art. Evidence of this is found in Ziffer (March). In the paragraph spanning the third and fourth columns of page 48, a professional car audio installer is quoted indicating that the Bazooka bass tubes were the most compact bass speakers available at the time of the invention. In the appeal brief filed on 30 October 2003, applicant states: "it is impossible to put these large Bazooka bass speakers in the rear trunk corner at the rear of the vehicle". As such, applicant admits that the most compact bass speaker known to one of ordinary skill in the art at the time of the invention could not be employed as claimed. Applicant's disclosure provides no information on how to produce a low frequency speaker of the size and shape necessary to be employed as claimed. Claims 3 and 8 through 10 depend from Claims 2 or 7. As such, the claims are not enabled. In addition, Claims 3 and 8 require rear corner mounting and so claim a compactness of the speaker beyond what is required by Claims 2 and 7. Therefore the failure of enablement is greater for these claims. In order to advance prosecution to the maximum possible extent, examiner presents below prior art rejections for Claims 2 and 7 and claims depending therefrom based on the interpretation that either (1) the invention comprehends a vehicle with sufficient space between the interior trunk trim and the vehicle outer shell to contain a bass speaker or (2) applicant's disclosure admits that the occupying of negligible useful trunk volume and the smaller decrease in calculated useful trunk volume is inherent in the rear corner mounting. Pp. 2-3.

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41. While, as applicant points out, this ground of rejection was not previously applied during prosecution, that omission does not constitute evidence that the claims are enabled by the original disclosure. Further, as stated above under Claim Rejections, 35 USC §112, applicant raised the issue of the impossibility of mounting even a very compact low frequency loudspeaker so as to conform to the limitations of the claims in the appeal brief filed 30 October 2003. As such, the rejection was made in the first Office action following applicant's spontaneous admission that one skilled in the art would not be able to practice the claimed invention.

42. Applicant alleges that the disclosed exemplary embodiment and associated frequency responses constitute enablement. Examiner respectfully disagrees. The exemplary embodiment disclosed in Figs. 1 and 2, page 1: lines 21-26 and page 2: line 11-27 depict and describe a low-frequency speaker small enough to be tucked away in corner of a car trunk. At the time of the invention⁴ low frequency speakers of this size were not known to those of ordinary skill in the art. Evidence of this is found in Ziffer (March). In the paragraph spanning the third and fourth columns of page 48, a professional car audio installer is quoted

indicating that the Bazooka bass tubes were the most compact bass speakers available at the time of the invention. Since applicant admits the impossibility of mounting the Bazooka bass tube so as to conform to the limitations of the claims, the claims are not enabled Applicant has presented no evidence to indicate that at the time of the invention a low frequency speaker that could be applied as described in the claims was available to one of ordinary skill in the art. As such, the rejections are maintained. Pp. 16-17.¹

The parent of this application was filed on April 21, 1992, and in numerous office actions and in two appeals, including two Examiner's Answers, the sufficiency of the disclosure was never challenged. The application discloses an exemplary embodiment, and FIGS. 3 and 4 disclose actual frequency responses of the exemplary embodiment. An embodiment of the invention takes advantage of locating a speaker in the rear corner of the trunk to provide good low frequency response with a speaker that occupies negligible useful trunk volume.

The recognition that it is impossible to put these large Bazooka bass speakers in the rear trunk corner at the rear of the vehicle hardly supports the unsupported conclusion that the "disclosure provides no information on how to produce a low frequency speaker of the size and shape necessary to be employed as claimed." The assertion, "As such, applicant admits that the most compact bass speaker known to one of ordinary skill in the art at the time of the invention could not be employed as claimed" is completely irrelevant to the statement in the following sentence, "Applicant's disclosure provides no information on how to produce a low frequency speaker of the size and shape necessary to be employed as claimed." P.3.

The specification discloses, "As shown in the rear view of FIG. 2 placement of the speaker enclosure 9 is preferably in a corner of the vehicle trunk 7 (here the left corner) occupying negligible useful trunk volume." Page 2, lines 17-20.

The specification further discloses, "While the speaker is shown mounted in an enclosure according to the preferred embodiment, the speaker could be mounted in the trunk without a separate enclosure." Page 3, lines 26-28.

The specification further explains that "the trunk as a whole acts as a natural low-pass filter." Page 2, line 26-27.

¹ Claim 1 has been amended to include the limitations of claim 2, and claims 2 and 7 including these limitations canceled so that this rejection is to claims 1, 3 and 8-10.

The decision of the Board of Patent Appeals and Interferences dated March 18, 2002, reversing the final rejection of May 8, 1998 did not deal with any section 112 rejections of claims.

II. THE CLAIMS PARTICULARLY POINT OUT AND DISTINCTLY CLAIM THE INVENTION IN RECITING WHEREIN SAID AT LEAST ONE SPEAKER IS DISPOSED IN A REARWARD SECTION OF THE TRUNK OCCUPYING NEGLIGIBLE USEFUL TRUCK VOLUME TO CAUSE A SMALLER DECREASE IN CALCULATED TRUCK VOLUME THAN WOULD OCCUR WITH SAID AT LEAST ONE SPEAKER MOUNTED IN SAID REAR DECK AND WERE NEVER CHALLENGED AS INDEFINITE FOR MORE THAN A DECADE.

The final action states:

4. Claims 2, 3 and 7 through 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claims 2 and 7 recite the limitation "said one speaker mounted in said rear deck". There is insufficient antecedent basis for this limitation in the claim. Claim 1, from which Claim 2 depends and the antecedent portion of Claim 2 recite the limitation "at least one speaker", which encompasses one or a plurality of speakers. As such, it is unclear whether "said one speaker" refers to all speakers in a plurality, one speaker in a plurality or a single speaker that is not part of a plurality. For the purpose of this Office action, examiner assumes the recitation "said one speaker" is intended as "said at least one speaker".

8. Claims 8 through 10 are indefinite due to dependence from Claim 7. Pp. 3-5.

44. Applicant alleges that the specification makes clear the limitations of the claims. Examiner respectfully disagrees. The indefiniteness of Claims 2 and 7 due to lack of antecedent basis stems from the recitation "said one speaker" following the recitations "at least one speaker" and "said at least one speaker". Because the recitation "at least one speaker" comprehends a plurality of speakers, the subsequent recitation of "said one speaker" is indefinite since it does not indicate to which one of the plurality it refers. Since the specification makes no reference to an embodiment with more than one speaker, it cannot resolve the indefiniteness.

45. Further indefiniteness in Claims 2 and 7 stems from the dependence of the claimed invention on the dimensions of the vehicle in which it is installed, as shown above under Claim Rejections, 35 USC §112. Because the claim could read on a speaker system installed in one The specification does not render the claim definite since the descriptions and depictions of the vehicle therein are vague and generic. As such, the rejections are maintained. Pp. 17-18.

All the claims include the limitation, "wherein said at least one speaker is disposed in a rearward section of the trunk occupying negligible useful trunk volume to cause a smaller decrease in calculated trunk volume than would occur with said at least one speaker mounted in said rear deck."

The specification fully explains this limitation in the two paragraphs on page two, beginning at line 7:

With reference now to the drawings and more particularly FIG. 1, a speaker enclosure 9 is placed in a rearward section of the trunk 7 of the vehicle 1. The speaker enclosure 9 is not, however, mounted to the rear deck 3 nor are speaker holes provided in the rear deck. As shown in the rear view of FIG. 2, placement of the speaker enclosure 9 is preferably in a corner of the vehicle trunk 7 (here the left corner).

The speaker configuration of the invention has numerous advantages over the prior art. Since the invention does not require holes to be cut in the rear deck, transmission of road noise into the passenger compartment is reduced. The package shelf does not, however, affect low frequencies (+/- 1dB), and the trunk as a whole acts as a natural low-pass filter. Also, because of the way auto manufacturers calculate trunk volume, the enclosure in the corner of the trunk results in a smaller decrease in calculated trunk volume than do speakers mounted in the rear deck.

In the decision in the parent application reversing the section 112 rejection of claims the Board said:

As a general rule, a claim must set out and circumscribe a particular area with a reasonable degree of precision and particularity when read in light of the disclosure as it would be by the artisan. In re Moore, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971). Acceptability of the claim language depends on whether one of ordinary skill in the art would understand what is claimed in light of the specification. Seattle Box Co. v. Industrial Crating & Packing, Inc., 731 F.2d 818, 826, 221 USPQ 568, 574 (Fed. Cir. 1984).

The rejection of claim 1 seems to recognize that "trunk rear" either means the portion of the trunk closest to the front of the vehicle or the portion of the trunk closest to the rear of the vehicle. The rejection insists that the definition must appear within the claim. The specification of the application and the drawings make it reasonably clear that the rear of the trunk is used in the same sense as the rear of the vehicle. The artisan having read the specification would readily understand that the trunk rear refers to a portion of the trunk located near the rear of the vehicle. In our view, when claim 1 is interpreted in light of the

specification, there can be no doubt as to what is intended by the phrase "trunk rear." Therefore, we do not sustain the rejection of claim 1 as being vague and indefinite.

With respect to claim 2, the examiner provides no additional analysis in support of the position that the term "negligible useful volume" is "vague and indefinite." The examiner has not given any reason why the objected to phrase is considered to be vague and indefinite. The specification describes what is meant by useful trunk volume, and the artisan should understand what is included within the recitation of occupying a negligible amount of this useful trunk space. We will not sustain the rejection of claim 2 as being vague and indefinite.

In summary, we have not sustained any of the rejections of claims 1-4 with respect to 35 U.S.C. § 112, second paragraph, so that the rejection of the claims under section 112 is reversed. Pp. 5-6.

That is the law of the case.

III. CLAIMS 1, 3 AND 4 ARE NOT ANTICIPATED BY ZIFFER (MAY) BECAUSE THE REFERENCE DOES NOT DISCLOSE EACH AND EVERY ELEMENT IN THE CLAIM ARRANGED AS IN THE CLAIM.

The final action states:

11. Claim 1 claims an audio speaker system for a vehicle. Ziffer (May) discloses a "full-blown sound system" (page 39, 2" paragraph) including tweeters and woofers (i.e., an audio speaker system) (page 41, photos) for a white 1990 Mazda Protege (i.e., a vehicle) (page 39, 22 paragraph). As is visible in the lower photograph on page 40, the vehicle disclosed has a passenger compartment (visible through the rear window seen between the raised trunk lid and the rear trunk lip), a spare tire compartment (visible around the spare tire), a trunk (page 40, photo caption) with a trunk floor (page 40, 1's column, 1 d full paragraph), a dividing portion (visible in a closed position in upper photograph on page 40 and in an open position in the lower photograph on page 40) and a rear deck (page 42, lower photograph and associated caption) with the dividing portion and rear deck separating the trunk from the passenger compartment. Ziffer (May) further discloses the woofers (i.e., at least one low frequency speaker) disposed within the trunk of the vehicle (page 40, paragraph spanning 3'E and 46 columns and 2" complete paragraph in 41 column) at the trunk rear in a location spaced from the passenger compartment by the portion of the trunk extending to the front of the vehicle (top photograph on page 41 shows the portion of the trunk extending to the front of the vehicle to the right of the woofer grille). The woofers disclosed by Ziffer (May) are clear of the rear deck (lower photograph on page 41 shows clearance between woofers and rear deck), above the trunk floor (top photograph on page 41 shows the disposition of the woofer above the trunk floor) and outside

the spare tire compartment (lower photograph on page 40 shows woofers outside the spare tire compartment).

12. Regarding Claim 2, Ziffer (May) further discloses woofers disposed in a rearward section of the trunk (top photograph on page 41 shows the portion of the trunk extending to the front of the vehicle to the right of the woofer grille) and flush mounted in the trunk walls (i.e., occupying no useful trunk volume) (page 40, lower photograph) and hence causing a smaller decrease in calculated trunk volume than would occur with the speakers mounted in the rear deck.

13. Regarding Claim 3, Ziffer (May) further discloses woofers disposed in a rear trunk corners (page 40, both photographs).

14. Regarding Claim 4, Ziffer (May) further discloses creation of woofer enclosures with fiberglass back walls built to conform to the shape of the car (page 40, paragraph spanning 3'd and 4th columns). Pp. 6-7.

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47. Applicant alleges that Ziffer (May) fails to disclose the speakers occupying negligible useful trunk volume as claimed. Examiner respectfully disagrees. Applicant's disclosure admits that useful trunk volume does not include "volumes that are ... behind cosmetic panels identified as cosmetic trim in the top view of a trunk in FIG. 5". The fronts of the enclosures disclosed in Ziffer (May) constitute such cosmetic panels and/or trim and, as such, the space behind them is not useful trunk volume, but rather constitutes "negligible space" as defined by applicant's disclosure. It can make no difference to the patentability of the speaker system whether the car was produced by the factory with a certain cosmetic trim configuration, or was subsequently modified to achieve that configuration. As such, the rejections are maintained. P. 18.

"It is well settled that anticipation under 35 U.S.C. 102 requires the presence in a single reference of all of the elements of a claimed invention." *Ex parte Chopra*, 229 U.S.P.Q. 230, 231 (BPA&I 1985) and cases cited.

"Anticipation requires the presence in a single prior art disclosure of all elements of a claimed invention arranged as in the claim." *Connell v. Sears, Roebuck & Co.*, 220 U.S.P.Q. 193, 198 (Fed. Cir. 1983).

"This court has repeatedly stated that the defense of lack of novelty (i.e., 'anticipation') can only be established by a single prior art reference which discloses each and every element of the claimed invention." *Structural Rubber Prod. Co. v. Park Rubber Co.*, 223 U.S.P.Q. 1264, 1270 (Fed. Cir. 1984), citing five prior Federal Circuit decisions since 1983 including *Connell*.

In a later analogous case the Court of Appeals for the Federal Circuit again applied this rule in reversing a denial of a motion for judgment n.o.v. after a jury finding that claims were anticipated. *Jamesbury Corp. v. Litton Industrial Prod., Inc.*, 225 U.S.P.Q. 253 (Fed. Cir. 1985).

After quoting from *Connell*, "Anticipation requires the presence in a single prior art disclosure of all elements of a claimed invention arranged as in the claim," 225 U.S.P.Q. at 256, the court observed that the patentee accomplished a constant tight contact in a ball valve by a lip on the seal or ring which interferes with the placement of the ball. The lip protruded into the area where the ball will be placed and was thus deflected after the ball was assembled into the valve. Because of this constant pressure, the patented valve was described as providing a particularly good seal when regulating a low pressure stream. The court quoted with approval from a 1967 Court of Claims decision adopting the opinion of then Commissioner and later Judge Donald E. Lane:

[T]he term "engaging the ball" recited in claims 7 and 8 means that the lip contacts the ball with sufficient force to provide a fluid tight seal. *** The Saunders flange or lip only sealingly engages the ball 1 on the upstream side when the fluid pressure forces the lip against the ball and never sealingly engages the ball on the downstream side because there is no fluid pressure there to force the lip against the ball. The Saunders sealing ring provides a compression type of seal which depends upon the ball pressing into the material of the ring. *** The seal of Saunders depends primarily on the contact between the ball and the body of the sealing ring, and the flange or lip sealingly contacts the ball on the upstream side when the fluid pressure increases. 225 U.S.P.Q. at 258.

Relying on *Jamesbury*, the ITC said, "Anticipation requires looking at a reference, and comparing the disclosure of the reference with the claims of the patent in suit. A claimed device is anticipated if a single prior art reference discloses all the elements of the claimed invention as arranged in the claim." *In re Certain Floppy Disk Drives and Components Thereof*, 227 U.S.P.Q. 982, 985 (U.S. ITC 1985).

These claims call for the at least one low frequency speaker disposed within the trunk of the vehicle at the trunk rear in a location spaced from the passenger compartment by the portion of the trunk extending to the front of the vehicle such that the at least one speaker is clear of the rear deck above the trunk floor outside the spare tire compartment disposed in a rearward section

of the trunk occupying negligible useful trunk volume to cause a smaller decrease in calculated trunk volume than would occur with said at least one speaker mounted in said rear deck.

The reference states:

Since the trunk is usually the main repository for audio components, some installations leave little room for luggage, much less a spare tire. Baker managed to keep his spare-and enough room for luggage-by constructing a false floor in which he mounted components. He also retained use of the fold down rear seat by not mounting hardware on the rear wall of the trunk. He gave up only one foot on each side and on the bottom of the trunk.

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A subwoofer box has been positioned in each of the trunk's side walls. To maximize the volume of the enclosures (one cubic foot on the left side, slightly more on the other), their fiberglass back walls were built to conform to the shape of the car. Car Audio and Electronic May 1991, P.40.

The picture on that page clearly shows these speakers located in the side of the trunk between the rear of the trunk and the front, and giving up "one foot on each side" and on the bottom of the trunk with said woofer boxes occupying one cubic foot on the left side and slightly more on the other hardly discloses a speaker disposed in a rearward section of the trunk occupying negligible useful trunk volume to cause a smaller decrease in calculated trunk volume than would occur with said one speaker mounted in said rear deck.

If this ground of rejection were repeated, the Examiner was respectfully requested to quote verbatim the language in the reference regarded as corresponding to each limitation in each of these rejected claims. The Examiner did not and can not comply with this request.

IV. CLAIMS 1 AND 4-6 ARE NOT ANTICIPATED BY ZIFFER (MARCH) AT LEAST BECAUSE THE REFERENCE FAILS TO DISCLOSE EACH AND EVERY ELEMENT IN THESE REJECTED CLAIMS ARRANGED AS IN THE CLAIM.

The final rejection states:

15. Claims 1 and 4 through 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Ziffer (March) (Car Audio and Electronics, March 1991). These rejections rely on the embodiment depicted in the bottom photograph on page 48 in Ziffer (March) showing the bass tubes placed some distance rearward of the trunk front wall.

16. Claim 1 claims an audio speaker system for a vehicle. Ziffer (March) discloses bass tubes (i.e., an audio speaker system) (page 48, bottom photo) for a Volvo 740 Turbo (i.e., a vehicle) (page 47, 14 paragraph). As is visible in the photograph on page 47, the vehicle disclosed has a passenger compartment (visible through the side windows), a spare tire compartment (page 48, top photo shows gap in carpet between spare tire compartment lid and trunk floor), a trunk (page 48, top photo caption) with a trunk floor (page 48, top photo), a trunk front wall (i.e., dividing portion) (page 48, last paragraph) and a rear shelf (i.e., rear deck) (while not clearly depicted or described in Ziffer (March), evidence of the inherency of a rear shelf in a 1990 Volvo 740 Turbo sedan is found in Justin: "There was no factory rear shelf speaker in this car, so I had to saw out holes in the back"), with the dividing portion and rear shelf separating

the trunk from the passenger compartment. Ziffer (March) further discloses the bass tubes (i.e., at least one low frequency speaker) disposed within the trunk of the vehicle (page 48, lowest photograph) at the trunk rear in a location spaced from the passenger compartment by the portion of the trunk extending to the front of the vehicle (i.e., toward the upper right corner of the photograph). The bass tubes disclosed by Ziffer (March) are clear of the rear deck, above the trunk floor and outside the spare tire compartment (bottom photograph on page 48).

17. Regarding Claim 4, Ziffer (March) further discloses bass tube enclosures (page 48, top photo).

18. Regarding Claim 5, applicant discloses that the front seat frequency response hole and rear seat frequency response peak are the result of using deck mounted speakers (page 3, lines 13-25). As shown below apropos of Claim 6, the vehicle disclosed in Ziffer (March) does not use deck mounted speakers or have rear deck speaker holes. As such, it is inherently characterized by freedom from the undesirable front seat frequency response hole and rear seat frequency response peak.

19. Regarding Claim 6, the rear shelf (i.e., rear deck) of the 1990 Volvo 740 Turbo sedan has no speaker holes in the rear deck. Evidence of the rear shelf without speaker holes in a 1990 Volvo 740 Turbo sedan is found in Justin: "There was no factory rear shelf speaker in this car, so I had to saw out holes in the back." Ziffer (March) further discloses that a design consideration was to not cut holes in the vehicle (page 48, paragraph spanning 3r and 4ei columns) and that the vehicle was purchased without a factory sound system (paragraph spanning pages 47 and 48). The Ziffer article is directed to a complete description of the vehicle sound system and makes no mention of rear shelf speakers or rear shelf speaker holes. As such, it is clear that the rear deck in the vehicle disclosed in Ziffer (March) is free of speaker holes. Pp. 7-9.

49. Applicant alleges that Ziffer (March) fails to disclose the vehicle is characterized by a front seat frequency response and a rear seat frequency

response constructed and arranged to be free of an undesirable peak in the rear seat frequency response of said vehicle between 80-100 Hz and free of an undesirable hole between 60-80 Hz in the front seat frequency response of the vehicle. Examiner respectfully disagrees. As shown above, applicant has admitted that the claimed frequency response characteristics are inherent in a vehicle where the low frequency speaker is trunk-mounted and the rear deck is free of holes. As shown above under Claim Rejections, 35 USC §102, the reference discloses these elements and, therefore, meets the claims. As such, the rejections are maintained. Pp. 18-19.

This reference is no more pertinent than the reference we distinguished in point I of the brief filed October 30, 2003. This reference also discloses Bazooka bass tubes and shows the large BAZOOKA tubes extending from front to rear in the trunk. Furthermore, claim 1 as amended includes the limitation of the at least one speaker being disposed in a rearward section of the trunk occupying negligible useful trunk volume to cause a smaller decrease in calculated trunk volume than would occur with said at least one speaker mounted in the rear deck. Claims 4-6 are dependent upon claim 1 and include these limitations, and nothing in the reference remotely discloses that the vehicle is characterized by a front seat frequency response and rear seat frequency response constructed and arranged to be free of an undesirable peak in the rear seat frequency response of the vehicle between 80-100 Hz and free of an undesirable hole between 60-80 Hz in the front seat frequency response of the vehicle.

If this ground of rejection were repeated, the Examiner was respectfully requested to quote verbatim the language in the reference regarded as corresponding to each element in these rejected claims as then presented. The Examiner did not and cannot comply with this request.

V. CLAIMS 3 AND 4 ARE PATENTABLE OVER PRIMARY REFERENCE ZIFFER (MAY) AND SECONDARY REFERENCE BAZOOKA AT LEAST BECAUSE IT IS IMPOSSIBLE TO COMBINE THE REFERENCES TO MEET THE LIMITATIONS OF THESE CLAIMS, AND THE REFERENCES FAIL TO SUGGEST THE DESIRABILITY OF COMBINING WHAT IS THERE DISCLOSED TO MEET THE LIMITATIONS OF THESE CLAIMS.

The final action states:

21. Claims 2 through 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ziffer (May) in view of Bazooka.

22. Regarding Claim 2, as stated above apropos of Claim 1, Ziffer (May) anticipates all elements of that claim. Therefore Ziffer (May) is shown to anticipate all elements of Claim 2 except the at least one speaker being disposed in a rearward section of the trunk occupying negligible useful trunk volume to cause a smaller decrease in calculated trunk volume than would occur with said [at least] one speaker mounted in said rear deck. Bazooka discloses a woofer configuration (third example) for use in a vehicle similar to the one disclosed in Ziffer (May) in which the woofers are disposed adjacent to and parallel to the sides of the trunk and "directed to the rearmost corner of the trunk". Further, it is clear from the first and second example of Bazooka that the woofer is intended to be disposed "3-4 inches from the wall the woofer is facing" (i.e., the rear of the trunk). As such, Bazooka discloses the woofer disposed in a rearward section of trunk. The disposition adjacent and parallel to the side of the trunk and 3-4 inches the rear of the trunk places the woofer in a rear trunk corner of the vehicle. It would have been obvious to one skilled in the art at the time of the invention to apply the woofer configuration taught by Bazooka to the vehicle sound system taught by Ziffer (May) for the purpose of reducing installation time, effort and cost by utilizing a ready-made subwoofer instead of fabricating one from raw materials. Applicant states in the disclosure that "placement of the speaker enclosure is preferably in a corner of the vehicle trunk occupying negligible useful trunk volume" (page 2, lines 17-20) and "because of the way auto manufacturers calculate useful trunk volume, the enclosure in the corner of the trunk results in a smaller decrease in calculated useful trunk volume than do speakers mounted in the rear deck" (page 2, lines 27-31). As such, applicant admits that the occupying of negligible useful trunk volume and the smaller decrease in calculated useful trunk volume is inherent in the rear corner mounting. As such, the combination of Ziffer (May) and Bazooka makes obvious all elements of Claim 2.

23. Regarding Claim 3, as shown above apropos of Claim 2, the combination of Ziffer (May) and Bazooka makes obvious the speaker located in a rear trunk corner at the rear of the vehicle.

24. Regarding Claim 4, Bazooka further discloses the woofers mounted in enclosures (top and bottom illustrations). Pp. 9-10

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51. Applicant alleges that the "secondary reference [i.e., Bazooka] fails to disclose the at least one speaker being disposed in rearward section of the trunk occupying negligible useful volume to cause a smaller decrease in calculated trunk volume than would occur with the one speaker mounted in the rear deck". Examiner respectfully disagrees. The depiction of sedan mounting in the Bazooka reference in light of the statement in that reference that the speaker should be placed 3-4 inches from the wall it is facing meet the limitation "the at least one speaker being disposed in rearward section of the trunk". As stated above, in maintaining that the claim is not rendered indefinite by the variability of vehicle configuration, applicant admits the inherency of meeting the limitation

"occupying negligible useful volume to cause a smaller decrease in calculated trunk volume than would occur with the one speaker mounted in the rear deck" in the rear corner disposition of the speakers disclosed by the Bazooka reference. As such, the rejections are maintained. P. 19.

The Board stated:

The Federal Circuit states that "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." **In re Fritch**, 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-84 n.14 (Fed. Cir. 1992), citing **In re Gordon**, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). It is further established that "[s]uch a suggestion may come from the nature of the problem to be solved, leading inventors to look to references relating to possible solutions to that problem." **Pro-Mold & Tool Co. v. Great Lakes Plastics Inc.**, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed. Cir. 1996), citing **In re Rinehart**, 531 F.2d 1048, 1054, 189 USPQ 143, 149 (CCPA 1976) (considering the problem to be solved in a determination of obviousness). The Federal Circuit reasons in **Para-Ordnance Mfg. Inc. v. SGS Importers Int'l Inc.**, 73 F.3d 1085, 1088-89, 37 USPQ2d 1237, 1239-40 (Fed. Cir. 1995), that for the determination of obviousness, the court must answer whether one of ordinary skill in the art who sets out to solve the problem and who had before him in his workshop the prior art, would have been reasonably expected to use the solution that is claimed by the Appellants.

In addition, our reviewing court requires the PTO to make specific findings on a suggestion to combine prior art references. **In re Dembiczak**, 175 F.3d 994, 1000-01, 50 USPQ2d 1614, 1617-19 (Fed. Cir. 1999). Our reviewing court states further that the "factual question of motivation is material to patentability, and could not be resolved on subjective belief and unknown authority." **In re Lee**, Slip OP 00-1158 page 9. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher." **W.L. Gore v. Garlock, Inc.**, 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983). Board Decision March 18, 2002. Pp. 5-7.

As set forth above, the primary reference does not anticipate each element in claim 1. Furthermore, as noted in point one of the brief filed October 30, 2003, which the Examiner found persuasive, the secondary reference fails to disclose the at least one speaker being disposed in the rearward section of the trunk occupying negligible useful volume to cause a smaller decrease in calculated trunk volume than would occur with the at least one speaker mounted in the rear deck.

Accordingly, it is impossible to combine the primary and secondary references to meet claims 2-4. "Moreover, we observe that even if these references were combined in the manner proposed by the examiner, that which is set forth in appellant's claims . . . would not result." *Ex parte Bogar*, slip op. p.7 (BPA&I Appeal No. 87-2462, October 27, 1989). "Even if we were to agree with the examiner that it would have been obvious to combine the reference teachings in the manner proposed, the resulting package still would not comprise zipper closure material that terminates short of the end of the one edge of the product containing area, as now claimed." *Ex parte Schwarz*, slip op. p.5 (BPA&I Appeal No. 92-2629 October 28, 1992). "Although we find nothing before us indicating why it would be desired to combine the references in the manner urged by the examiner, it is clear to us that such a modification by itself would not result in that which is set forth in the claims." *Ex Parte Kusko*, 215 U.S.P.Q. 972, 974 (BPA&I 1981). That it is impossible to combine the primary and secondary references to meet the limitations of claims 3-4 is reason enough for withdrawing the rejection of them on this combination of references.

If this ground of rejection were repeated as to the claims being rejected, the Examiner was respectfully requested to quote verbatim the language in each reference regarded as corresponding to each limitation in each of these rejected claims, and quote verbatim the language in the references regarded as suggesting the desirability of combining what is there disclosed to meet the terms of these claims. The Examiner did not and cannot comply with this request.

VI. CLAIMS 1, 3-6 AND 7-10 ARE PATENTABLE OVER PRIMARY REFERENCE ZIFFER (MARCH) IN VIEW OF SECONDARY REFERENCE BAZOOKA UNDER SECTION 103 AT LEAST BECAUSE IT IS IMPOSSIBLE TO COMBINE THESE REFERENCE TO MEET THE LIMITATIONS OF THESE CLAIMS, AND NOTHING IN THE REFERENCES SUGGESTS THE DESIRABILITY OF COMBINING WHAT IS THERE DISCLOSED TO MEET THE LIMITATIONS OF THESE CLAIMS.

The final action states:

25. Claims 1 through 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ziffer (March) in view of Bazooka. These rejections rely on the embodiment depicted in the top photograph on page 48 in Ziffer (March) showing the bass tubes placed near the trunk front wall.

26. Claim 1 claims an audio speaker system for a vehicle. Ziffer (March) discloses bass tubes (i.e., an audio speaker system) (page 48, top photo) for a Volvo 740 Turbo (i.e., a vehicle) (page 47, 1st paragraph). As is visible in the photograph on page 47, the vehicle disclosed has a passenger compartment (visible through the side windows), a spare tire compartment (page 48, top photo shows gap in carpet between spare tire compartment lid and trunk floor), a trunk (page 48, top photo caption) with a trunk floor (page 48, top photo), a trunk front wall (i.e., dividing portion) (page 48, last paragraph) and a rear shelf (i.e., rear deck) (while not clearly depicted or described in Ziffer (March), evidence of the inherency of a rear shelf in a 1990 Volvo 740 Turbo sedan is found in Justin: "There was no factory rear shelf speaker in this car, so I had to saw out holes in the back"), with the dividing portion and rear shelf separating the trunk from the passenger compartment. Ziffer (March) further discloses the bass tubes (i.e., at least one low frequency speaker) disposed within the trunk of the vehicle (page 48, top photograph). The bass tubes disclosed by Ziffer (March) are above the trunk floor and outside the spare tire compartment (top photograph on page 48). Therefore Ziffer (March) is shown to anticipate all elements of Claim 1 except the speaker(s) disposed at the trunk rear in a location spaced from the passenger compartment by the portion of the trunk extending to the front of the vehicle such that the speaker(s) is/are clear of the rear deck. Bazooka discloses a woofer configuration (third example) for use in a vehicle similar to the one disclosed in Ziffer (March) in which the woofers are disposed adjacent to and parallel to the sides of the trunk and "directed to the rearmost corner of the trunk". Further, it is clear from the first and second example of Bazooka that the woofer is intended to be disposed "3-4 inches from the wall the woofer is facing" (i.e., the rear of the trunk). As such, Bazooka discloses the woofer disposed in a rearward section of the trunk. The disposition adjacent and parallel to the side of the trunk and 3-4 inches the rear of the trunk places the woofer in a rear trunk corner of the vehicle (i.e., at the trunk rear in a location spaced from the passenger compartment by the portion of the trunk extending to the front of the vehicle such that the speaker(s) is/are clear of the rear deck). The Bazooka reference is produced by the manufacturer of the bass tubes disclosed in Ziffer (March) and represents rear corner mounting as the preferred configuration for a sedan. It would have been obvious to one skilled in the art at the time of the invention to apply the woofer configuration taught by Bazooka to the vehicle sound system taught by Ziffer (March) for the purpose of ensuring proper function of the bass tube by installing according to the manufacturer's recommendation.

27. Regarding Claim 2, as stated above apropos of Claim 1, the combination of Ziffer (March) and Bazooka makes obvious all elements of that claim. Therefore the combination is shown to make obvious all elements of Claim 2 except the at least one speaker being disposed in

a rearward section of the trunk occupying negligible useful trunk volume to cause a smaller decrease in calculated-trunk volume than would occur with said [at least] one speaker mounted in said rear deck. As shown above apropos of

Claim 1, the combination makes obvious rear corner mounting of the bass tubes. Applicant states in the disclosure that "placement of the speaker enclosure is preferably in a corner of the vehicle trunk occupying negligible useful trunk volume" (page 2, lines 17-20) and "because of the way auto manufacturers calculate useful trunk volume, tie enclosure in the corner of the trunk results in a smaller decrease in calculated useful trunk volume than do speakers mounted in the rear deck" (page 2, lines 27-31). As such, applicant admits that the occupying of negligible useful trunk volume and the smaller decrease in calculated useful trunk volume is inherent in the rear corner mounting. As such, the combination of Ziffer (March) and Bazooka makes obvious all elements of Claim 2.

28. Regarding Claim 3, as stated above apropos of Claim 2, the combination of Ziffer (March) and Bazooka makes obvious all elements of that claim. Further, as shown above apropos of Claim 1, the combination makes obvious rear corner mounting of the bass tubes. As such, the combination of Ziffer (March) and Bazooka makes obvious all elements of Claim 3.

29. Regarding Claim 4, Bazooka further discloses the woofers mounted in enclosures (top and bottom illustrations).

30. Regarding Claim 5, applicant discloses that the front seat frequency response hole and rear seat frequency response peak are the result of using deck-mounted speakers (page 3, lines 13-25). As shown below apropos of Claim 6, the vehicle disclosed in Ziffer (March) does not use deck mounted speakers and does not have rear deck speaker holes. Therefore, it is inherently characterized by freedom from the undesirable front seat frequency response hole and rear seat frequency response peak. As such, the combination of Ziffer (March) and Bazooka makes obvious all elements of Claim 5.

31. Regarding Claim 6, the rear shelf (i.e., rear deck) of the 1990 Volvo 740 Turbo sedan has no speaker holes in the rear deck. Evidence of the rear shelf without speaker holes in a 1990 Volvo 740 Turbo sedan is found in Justin: "There was no factory rear shelf speaker in this car, so I had to saw out holes in the back." Ziffer (March) further discloses that a design consideration was to not cut holes in the vehicle (page 48, paragraph spanning 3" and 0 columns) and that the vehicle was purchased without a factory sound system (paragraph spanning pages 47 and 48). The Ziffer article is directed to a complete description of the vehicle sound system and makes no mention of rear shelf speakers or rear shelf speaker holes. Therefore, it is clear that the rear deck in the vehicle disclosed in Ziffer (March) is free of speaker holes. As such, the combination of Ziffer (March) and Bazooka makes obvious all elements of Claim 6.

32. Regarding Claim 7, as stated above apropos of Claim 6, the combination of Ziffer (March) and Bazooka makes obvious all elements of that claim. Therefore the combination is shown to make obvious all elements of Claim 7 except the at least one speaker being disposed in a rearward section of the trunk occupying negligible useful trunk volume to cause a smaller decrease in calculated trunk volume than would occur with said [at least] one speaker mounted in said rear deck. As shown above apropos of Claim 1, the combination

makes obvious rear corner mounting of the bass tubes. Applicant states in the disclosure that "placement of the speaker enclosure is preferably in a corner of the vehicle trunk occupying negligible useful trunk volume" (page 2, lines 17-20) and "because of the way auto manufacturers calculate useful trunk volume, the enclosure in the corner of the trunk results in a smaller decrease in calculated useful trunk volume than do speakers mounted in the rear deck" (page 2, lines 27-31). As such, applicants admits that the occupying of negligible useful trunk volume and the smaller decrease in calculated useful trunk volume is inherent in the rear corner mounting. As such, the combination of Ziffer (March) and Bazooka makes obvious all elements of Claim 7.

33. Regarding Claim 8, as stated above apropos of Claim 7, the combination of Ziffer (March) and Bazooka makes obvious all elements of that claim. Further, as shown above apropos of Claim 1, the combination makes obvious rear corner mounting of the bass tubes. As such, the combination of Ziffer (March) and Bazooka makes obvious all elements of Claim 8.

34. Regarding Claim 9, Bazooka further discloses the woofers mounted in enclosures (top and bottom illustrations).

35. Regarding Claim 10, applicant discloses that the front seat frequency response hole and rear seat frequency response peak are the result of using deck mounted speakers (page 3, lines 13-25). As shown above apropos of Claim 6, the vehicle disclosed in Ziffer (March) does not use deck mounted speakers or have rear deck speaker holes. Therefore, it is inherently characterized by freedom from the undesirable front seat frequency response hole and rear seat frequency response peak. As such, the combination of Ziffer (March) and Bazooka makes obvious all elements of Claim 10. Pp. 11-15.

...

53. Applicant's arguments are limited to the assertion that Ziffer (March) fails to anticipate Claim 1. Examiner respectfully disagrees for reasons stated above.

54. In the first complete paragraph on page 11 of the response, applicant alleges that examiner has repeated withdrawn rejections. Examiner respectfully disagrees. While certain similarities exist between the withdrawn rejections and those made in the prior Office action mailed on 23 August 2004, the more recent rejections differ in significant ways. P. 20.

We have shown above that the primary reference fails to anticipate claim 1, and nothing in the secondary reference discloses limitations in claims 1, 3-6 and 8-10. It is impossible to combine these references to meet the limitations of claims 1, 3-6 and 8-10.

Should this ground of rejection be repeated as applied in the final action, the Examiner was respectfully requested to quote verbatim the language in each reference regarded as corresponding to each element in these rejected claims and quote verbatim the language in the

references regarded as suggesting the desirability of combining what is there disclosed to meet the terms of the rejected claims. The Examiner did not and can not comply with this request.

VII. THAT THE PTO SENT AN E-MAIL TO COMPETITORS OF THE APPLICATION OWNER SEEKING PRIOR ART IN AN EFFORT TO BAR THE GRANT OF A PATENT TO APPLICATION OWNER AND WAS UNABLE TO OBTAIN A SINGLE RELEVANT REFERENCE IS FURTHER EVIDENCE THAT THE CLAIMS MEET THE CONDITIONS FOR PATENTABILITY.

M..P.E.P. 1214.04 headed "**EXAMINER REVERSED**" provides:

The Examiner should never regard such a reversal as a challenge to make a new search to uncover other and better references. This is particularly so where the application or ex parte reexamination proceeding has meanwhile been transferred or assigned to an examiner other than the one who rejected the claims leading to the appeal. The second examiner should give full faith and credit to the prior examiner's search.

Despite the reversal by the Board on March 18, 2002, the PTO not only made a new search but sent an e-mail to competitors of the application owner that read as follows:

Dear Sir/Madam

My name is Pamela Reynolds. I work for the United States Patent and Trademark Office, in Arlington Virginia, as the Patent Information Specialist in the Electronic Information Center.

One of our patent examiners would **like to obtain the following documentation**

Articles with pictures and dated description of mounting a woofer or subwoofer in the trunk of a car or automobile. This data must be dated before 1992.

The examiner believes this information will help in determining whether or not to grant a patent application. This application is not related to any patents that you or your Company may or may not have pending, that we know of.

Before issuing a patent, an examiner looks for any information indicating that the application does not duplicate an existing invention or product. The examiner believes your information or document might fit this profile. The Examiner needs this information as soon as possible, so a prompt reply would be appreciated.

Thank you.

Pamela Reynolds

United States Patent and Trademark Office

Arlington, VA

703-306-0255

(703) 305-5443 FAX

Applicant : Donald F. Hamilton et al.
Serial No. : 08/777,958
Filed : December 24, 1996
Page : 21 of 24

Attorney's Docket No.: 02103-211002

Please send the document or paper copy (email a pdf or fax a copy) or mail a hard copy to:

US Patent & Trademark Office
Electronic Information Center
ATTN: Pamela Reynolds
2101 Crystal Plaza Arcade #311
Arlington, VA 22202

If you prefer, you may fax the information to the Electronic Information Center at (703) 305-5443 or email it to me pamela.reynolds@uspto.gov

Despite our repeated request for responses to this e-mail, the Office has failed to furnish a single response, indicating that there is no more pertinent art that has been considered since the parent of this application was filed more than a dozen years ago. That is further evidence that the invention disclosed and claimed in this application meets the conditions for patentability.

CONCLUSION

In view of the forgoing authorities and reasoning and the inability of the prior art to anticipate, suggest or make obvious the subject matter as a whole of the invention disclosed and claimed in this application, the decision of the Examiner finally rejecting claims 1, 3-6 and 8-10 should be reversed. Should the Board be of the opinion that one or more of the rejected claims may be allowed in amended form, the Board is respectfully requested to include an explicit statement that a claim may be allowed in such amended form and direct that appellants should have the right to amend in conformity with such statement which shall be binding on the Examiner in the absence of new references or grounds of rejection.

The brief fee was previously enclosed. Should any fee have been omitted or be inadequate or excessive, the office is respectfully requested to charge any deficiency or credit any over payment to Deposit Account No. 06-1050, Order No. 02103-211002 of the undersigned attorneys.

Respectfully submitted,
FISH & RICHARDSON P.C.

Date: SEP 13 2005



Charles Hieken
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(via) *Claims Appendix.*

1. An audio speaker system for a vehicle having a passenger compartment, a spare tire compartment, a trunk having a trunk floor, a dividing portion and a rear deck, said dividing portion and said rear deck dividing the trunk and the passenger compartment, said audio speaker system comprising at least one low frequency speaker disposed within the trunk of the vehicle at the trunk rear in a location spaced from the passenger compartment by the portion of the trunk extending to the front of said vehicle such that said at least one speaker is clear of the rear deck above said trunk floor and outside said spare tire compartment,

wherein said at least one speaker is disposed in a rearward section of the trunk occupying negligible useful trunk volume to cause a smaller decrease in calculated trunk volume than would occur with said at least one speaker mounted in said rear deck.

3. An audio speaker system in accordance with claim 1 , wherein said at least one speaker is disposed in a rear trunk corner at the rear of said vehicle.

4. An audio speaker system in accordance with claim 1, wherein said at least one speaker is mounted in an enclosure.

5. An audio speaker system in accordance with claim 1, wherein said vehicle is characterized by a front seat frequency response and a rear seat frequency response constructed and arranged to be free of an undesirable peak in the rear seat frequency response of said vehicle between 80-100 Hz and free of an undesirable hole between 60-80 Hz in the front seat frequency response of said vehicle.

6. An audio speaker system for a vehicle in accordance with claim 1 wherein said rear deck is free of speaker holes.

8. An audio speaker system in accordance with claim 6, wherein said at least one speaker is disposed in a rear trunk corner at the rear of said vehicle.

9. An audio speaker system in accordance with claim 6, wherein said at least one speaker is mounted in an enclosure.

10. An audio speaker system in accordance with claim 6, wherein said vehicle is characterized by a front seat frequency response and a rear seat frequency response constructed and arranged to be free of an undesirable peak in the rear seat frequency response of said vehicle between 80-100 Hz and free of an undesirable hole between 60-80 Hz in the front seat frequency response of said vehicle.

Fi:

(ix) Evidence Appendix

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Date April 14, 2005

To Examiner Daniel Swerdlow
Art Unit 2644

Telephone: 703-305-4088

Facsimile number 02103-21100002 / 703-872-9306

From Charles Hieken

Re AABOSQ42 VEHICLE TRUNK WOOFER
Your Ref.: Applicant: Donald F. Hamilton
Filed: December 24, 1996
Ser. No.: 08/777,958

Our Ref.: 02103-211002

Number of pages
including this page 3

Message Dear Mr. Swerdlow,

In response to the helpful suggestion in the office action dated April 8, 2005, we enclose a copy of the message in question providing the sender's name and e-mail address and the date of transmission. Please furnish us with copies of the responses to this e-mail message as soon as possible. Respectfully submitted.

NOTE: This facsimile is intended for the addressee only and may contain privileged or confidential information. If you have received this facsimile in error, please immediately call us collect at 617 542-5070 to arrange for its return. Thank you.

Chuck Hieken

Subject: FW: PTO EMAIL TO BOSE COMPETITORS DISCLOSING BOSE INVENTION SEEKING PRIOR ART TO AVOID GRANTING A PATENT ON IT

From: Reynolds, Pamela [mailto:Pamela.Reynolds@USPTO.GOV]

Sent: Tuesday, June 15, 2004 9:29 AM

To: gklein@CE.org; jtunnell@CE.org; Aevelyn@bostona.com; Baron, Al; AUDIOBAHNX@aol.com; awenzel@jlaudio.com; barry@magnadyne.com; barryo@audioprods.com; bborchardt@recoton.com; beckerna@nis.net; bgaffane@pioneer-usa.com; bgoodman@aurasound.com; bill@pinnaclesys.com; cfontes@bostona.com; crandall@mcintoshlabs.com; cris.pyle@klipsch.com; cschultz@kicker.com; dean@nakamichi.com; dlovelace@customgroup.com; etoomey@aiwa.com; fpierce@clarion.com; gabrielle.wolohojian@haledorr.com; gbougdanos@audiovox.com; howardh@apic.ca; hsperling@harman.com; ildau@recoton.com; IMAGEDYNA@aol.com; jim.frazer@us.bosch.com; jim@directed.com; jminarik@directed.com; jmuto@clarion.com; joneill@alpine-usa.com; Jrichter@kenwoodusa.com; jrichter@kenwoodusa.com; jshalam@audiovox.com; jsmall@velodyne.com; loyd@mitekcorp.com; mack@kmlaw.com; malbert@wolfgreenfield.com; mfitzgerald@magnadyne.net; mitch_nollman@bose.com; mkoehn@cerwin-vega.com; mm@dynaudiousa.com; mml@marymlee.com; pam@klhaudio.com; parvinch@rockfordcorp.com; rain@kefamerica.com; raveletteg@tce.com; rstone@pioneerservice.com; s_baker@denonnj.com; samt@diamondaudio.com; Sandy1ma@aol.com; scaldero@yamaha.com; steve@profileusa.com; TMStamm@aol.com; tom.patton@philips.com; tom@blaupunktusa.com; townsf@panasonic.com; lkennedy@recoton.com; cwoodruff@alpine-usa.com; esummers@harman.com; kc@directed.com; kcbean@directed.com; bisset@hugheshubbard.com; twerly@Washburn.com; rmacdonald@nmbusa.com; dmiyamoto@sidley.com; legal@jlaudio.com; gerry.newman@sfnr.com; Sylvia@klhaudio.com; hmitnick@jvc.com

Subject: Mounting a woofer or subwoofer in

Dear Sir/Madam

My name is Pamela Reynolds. I work for the United States Patent Trademark Office, in Arlington Virginia, as the Patent Information Specialist in the Electronic Information Center.

One of our patent examiners would like to obtain the following documentation

Articles with pictures and dated description of mounting a woofer or subwoofer in the trunk of a car or automobile. This data must be dated before 1992.

The examiner believes this information will help in determining whether or not to grant a patent application. This application is not related to any patents that you or your Company may or may not have pending, that we know of.

Before issuing a patent, an examiner looks for any information indicating that the application

4/14/2005

does not duplicate an existing invention or product. The examiner believes your information or document might fit this profile. The Examiner needs this information as soon as possible, so a prompt reply would be appreciated.

Thank you.

Pamela Reynolds

United States Patent and Trademark Office

Arlington, VA

703-306-0255

(703) 305-5443 FAX

Please send the document or paper copy (email a pdf or fax a copy) or mail a hard copy to:

US Patent & Trademark Office

Electronic Information Center

ATTN: Pamela Reynolds

2101 Crystal Plaza Arcade #311

Arlington, VA 22202

If you prefer, you may fax the information to the Electronic Information Center at (703) 305-5443 or email it to me pamela.reynolds@uspto.gov

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 18

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DONALD F. HAMILTON and MICHAEL D. ROSEN

Appeal No. 2000-1577
Application 08/777,958

HEARD: March 5, 2002

MAILED

MAR 18 2002

**PAT. & T.M. OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES**

Before FLEMING, LALL, and SAADAT, Administrative Patent Judges.

FLEMING, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1 through 10, all the claims pending in present application.

The invention relates to the placement of a low frequency audio speaker to effect improved frequency response in the interior of the vehicle with a trunk speaker that occupies negligible useful trunk volume. Figure 1 in the specification is a rear three-quarter view of an automobile showing speaker placement according to an exemplary embodiment of the invention. See page 1 of the specification. Figure 2 is a rear view of the automobile showing speaker placement in accordance with the embodiment of figure 1. See page 1 of the specification. Figure 1 shows a speaker enclosure 9 placed in a rearward section of the trunk 7 of the vehicle 1 above the trunk floor 8 outside any compartment containing the spare tire. See page 2 of the specification. The speaker enclosure 9 is not mounted to the rear deck 3 nor are speaker holes provided in the rear deck. See page 2 of the specification. As shown in the rear view of figure 2, placement of the speaker enclosure 9 is preferably in a corner of the vehicle trunk 7 occupying negligible useful trunk volume. See page 2 of the specification.

The only independent claim 1 is reproduced as follow:

1. An audio speaker system for a vehicle having a passenger compartment, a spare tire compartment, a trunk having a trunk floor, a dividing portion and a rear deck, said dividing portion and said rear deck dividing the trunk and the passenger compartment, said audio speaker system comprising at least one

Appeal No. 2000-1577
Application 08/777,958

low frequency speaker disposed within the trunk of the vehicle at the trunk rear in a location spaced from the passenger compartment by the portion of the trunk extending to the front of the said vehicle such that said at least one speaker is clear of the rear deck above said trunk floor and outside said spare tire compartment.

The Examiner relies on the following reference:

Newcomb, D. "Something Fishy" Car Audio and Electronics, (Feb. 1992) pp. 28-32.

Claims 1 through 10 stand rejected under 35 U.S.C. § 103 as being unpatentable over Newcomb.

Rather than reiterate the arguments of Appellants and the Examiner, references is made to the briefs¹ and Answer for the respective details thereof.

OPINION

We will not sustain the rejection of claims 1 through 10 under 35 U.S.C. § 103.

In rejecting claims under 35 U.S.C. § 103, the Examiner bears the initial burden of establishing a *prima facie* case of obviousness. In *re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ 1443, 1444 (Fed. Cir. 1992). See also In *re Piasecki*, 745 F.2d 1468,

¹Appellants filed an appeal brief on January 19, 1999. Appellants filed a reply brief on September 29, 1999. The Examiner mailed an office communication on December 15, 1999, stating that the reply brief has been noted and entered.

1472, 223 USPQ 785, 788 (Fed. Cir. 1984). The Examiner can satisfy this burden by showing that some objective teaching in the prior art or knowledge generally available to one of ordinary skill in the art suggests the claimed subject matter. In *re Fine*, 837, F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). Only if this initial burden is met does the burden of coming forward with evidence or argument shift to the Appellants. *Oetiker*, 977, F.2d at 1445, 24 USPQ at 1444. See also *Piasecki*, 745 F.2d at 1472, 223 USPQ at 788.

An obviousness analysis commences with a review and consideration of all the pertinent evidence and arguments. "In reviewing the [E]xaminer's decision on appeal, the Board must necessarily weigh all of the evidence and arguments." In *re Oetiker*, 977 F.2d at 1445, 24 USPQ2d at 1444. "[T]he Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion." In *re Lee*, Slip OP 00-1158 page 9. With these principles in mind, we commence review of the pertinent evidence and arguments of Appellants and Examiner.

Appellants argue that Newcomb does not teach or suggest "at least one low frequency speaker disposed within the trunk of the vehicle at the trunk rear in a location spaced from the passenger compartment by the portion of the trunk extending to the front of said vehicle such that said at least one speaker is clear of the rear deck above said trunk floor and outside said spare tire compartment" as recited in Appellant's claim 1. See page 4 of the Appellant's brief. Appellants further argue that the Examiner is using the Appellant's disclosure as a blueprint or a template for proposing the modification to what the reference discloses in an attempt to meet the terms of claims being rejected. See page 5 of the Appellants' brief. Appellants further argue that the Examiner must provide evidence of any factual teachings or suggestions that would lead one of ordinary skill in the art to make the proposed modification. See pages 3, 4 and 5 of Appellant's reply brief.

The Federal Circuit states that "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." In *re Fritch*, 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-84 n.14 (Fed. Cir. 1992), citing *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125,

1127 (Fed. Cir. 1984). It is further established that "[s]uch a suggestion may come from the nature of the problem to be solved, leading inventors to look to references relating to possible solutions to that problem." *Pro-Mold & Tool Co. v. Great Lakes Plastics Inc.*, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed. Cir. 1996), citing *In re Rinehart*, 531 F.2d 1048, 1054, 189 USPQ 143, 149 (CCPA 1976) (considering the problem to be solved in a determination of obviousness). The Federal Circuit reasons in *Para-Ordnance Mfg. Inc. v. SGS Importers Int'l Inc.*, 73 F.3d 1085, 1088-89, 37 USPQ2d 1237, 1239-40 (Fed. Cir. 1995), that for the determination of obviousness, the court must answer whether one of ordinary skill in the art who sets out to solve the problem and who had before him in his workshop the prior art, would have been reasonably expected to use the solution that is claimed by the Appellants.

In addition, our reviewing court requires the PTO to make specific findings on a suggestion to combine prior art references. In *re Dembiczak*, 175 F.3d 994, 1000-01, 50 USPQ2d 1614, 1617-19 (Fed. Cir. 1999). Our reviewing court states further that the "factual question of motivation is material to patentability, and could not be resolved on subjective belief and unknown authority." In *re Lee*, Slip OP 00-1158 page 9. It is

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improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher." *W.L. Gore v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983).

Upon our review of Newcomb, we find that Newcomb teaches to place the woofer inside the spare tire compartment. Furthermore, we fail to find any suggestion of placing the woofer in any other portion of the trunk. Furthermore, we find that Newcomb specifically teaches that the placement of the woofer in the spare tire compartment of the trunk is advantageous because it allows for more usable space in the trunk for other luggage. See page 30 of Newcomb. Therefore, we fail to find that the record supports the Examiner's position of specific findings on a suggestion to modify Newcomb to place the woofer outside of the spare tire compartment as claimed by the Appellants.

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Application 08/777,958

We have not sustained the rejection of claims 1 through 10 under 35 U.S.C. § 103.

Accordingly, the Examiner's decision is reversed.

REVERSED

Michael R. Fleming
MICHAEL R. FLEMING
Administrative Patent Judge

Parshotam S Lall
PARSHOTAM S. LALL
Administrative Patent Judge

MAHSHID SAADAT
MAHSHID SAADAT
Administrative Patent Judge

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MRF:pgg

Appeal No. 2000-1577
Application 08/777,958

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42

02103/211001

Submitted By:	Prac
Action Code:	Decision on Appeal
Base Date:	11-27-96
Due Date:	12-27-96
Deadline:	1-26-97
Initials:	Bhates
Record:	99363

NOV 27 1996

UNITED STATES PATENT AND TRADEMARK OFFICE
BOARD OF PATENT APPEALS
AND INTERFERENCES

Submitted By:	Billing Secretary
Due Date:	12-27-96
Deadline:	12-27-96
Initials:	RL

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

This opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 28

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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DEC 02 1996

FISH & RICHARDSON
BOSTON, MA

Ex parte DONALD F. HAMILTON
and MICHAEL D. ROSEN

Appeal No. 94-2403
Application No. 07/871,926¹

RECEIVED

DEC 02 1996

FISH & RICHARDSON P.C.
BOSTON, MA

HEARD:
October 16, 1996

Before KRASS, JERRY SMITH and BARRETT, Administrative Patent Judges.

JERRY SMITH, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on the appeal under 35 U.S.C. § 134 from the examiner's rejection of claims 1-4, which constitute all the claims in the application. An amendment after final rejection was filed on August 17, 1993 but was denied entry by the

¹ Application for patent filed April 21, 1992.

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Application No. 07/871,926

examiner. A second amendment after final rejection was filed on January 9, 1995 and was entered by the examiner.

The invention pertains to an audio speaker system for a vehicle such as a conventional automobile. More specifically, the audio speaker system has at least one low frequency speaker disposed in a rear portion within the trunk of the vehicle.

Representative claim 1 is reproduced as follows:

1. An audio speaker system for a vehicle having a passenger compartment, a trunk, a dividing portion and a rear deck, said dividing portion and said rear deck dividing the trunk and the passenger compartment, said audio speaker system comprising at least one low frequency speaker disposed within the trunk of the vehicle at the trunk rear such that said at least one speaker is clear of the rear deck.

The examiner relies on the following reference:

Newcomb, "Something Fishy," Car Audio and Electronics, Vol. 5, No. 2, February 1992, pages 28-32.

Claims 1-4 were finally rejected under 35 U.S.C. § 112, second paragraph, as failing to particularly point out and distinctly claim the invention. Claims 1-4 also stand rejected under 35 U.S.C. § 102(a) as anticipated by the teachings of the Newcomb article (Newcomb).

Rather than repeat the arguments of appellants or the examiner, we make reference to the brief and the answer for the respective details thereof.

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Application No. 07/871,926

OPINION

We have carefully considered the subject matter on appeal, the rejections advanced by the examiner, the arguments in support of the rejections and the evidence of anticipation relied upon by the examiner as support for the prior art rejection. We have, likewise, reviewed and taken into consideration, in reaching our decision, the appellants' arguments set forth in the brief along with the examiner's rationale in support of the rejections and arguments in rebuttal set forth in the examiner's answer.

It is our view, after consideration of the record before us, that the claims particularly point out the invention in a manner which complies with 35 U.S.C. § 112. We are also of the view that the teachings of Newcomb fully meet the invention as recited in claims 1-4. Accordingly, we affirm.

Appellants have indicated that for purposes of this appeal the claims will all stand or fall together as a single group. Consistent with this indication appellants have made no separate arguments with respect to any of the claims on appeal. Accordingly, all the claims before us will stand or fall together. Note In re King, 801 F.2d 1324, 1325, 231 USPQ 136, 137 (Fed. Cir. 1986); In re Sernaker, 702 F.2d 989, 991, 217 USPQ 1, 3 (Fed. Cir. 1983). Accordingly, we need only consider the

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rejections against claim 1 as representative of all the claims on appeal from the appellants' point of view.

We consider first the rejection of claims 1-4 under the second paragraph of 35 U.S.C. § 112. The examiner's rejection of these claims appears in the answer as follows:

Regarding claim 1, it is not clear where the trunk rear is. Examiner suggests to define the term relating to the front/rear of the car.

Regarding claim 2, see the rejection for claim 1.

Regarding claim 2, the term "negligible useful volume" is vague and indefinite.

Regarding claim 3, it is not clear where the rear trunk corner is.²

With respect to claim 1, appellants assert that "the reference to rear is with respect to the front and rear of the vehicle" [brief, page 2]. They also note that a proposed amendment to the claim to clarify this issue was denied entry by the examiner. With respect to claim 2, appellants assert that negligible useful trunk volume means that the speaker takes up a "small percentage of the useful trunk volume" [brief, page 3]. They also again note that an attempt to clarify the claim by

² We note that the rejection of claim 3 under the second paragraph of 35 U.S.C. § 112 was apparently withdrawn in a letter from the examiner dated May 5, 1995 which was sent to appellants in response to the amendment filed on January 9, 1995.

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amendment was denied entry by the examiner. The examiner responded in the answer as to why the proposed amendments to the claims were denied entry, but the examiner did not otherwise further address the merits of the rejection.

As a general rule, a claim must set out and circumscribe a particular area with a reasonable degree of precision and particularity when read in light of the disclosure as it would be by the artisan. In re Moore, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971). Acceptability of the claim language depends on whether one of ordinary skill in the art would understand what is claimed in light of the specification. Seattle Box Co. v. Industrial Crating & Packing, Inc., 731 F.2d 818, 826, 221 USPQ 568, 574 (Fed. Cir. 1984).

The rejection of claim 1 seems to recognize that "trunk rear" either means the portion of the trunk closest to the front of the vehicle or the portion of the trunk closest to the rear of the vehicle. The rejection insists that the definition must appear within the claim. The specification of the application and the drawings make it reasonably clear that the rear of the trunk is used in the same sense as the rear of the vehicle. The artisan having read the specification would readily understand that the trunk rear refers to a portion of the trunk located near

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the rear of the vehicle. In our view, when claim 1 is interpreted in light of the specification, there can be no doubt as to what is intended by the phrase "trunk rear." Therefore, we do not sustain the rejection of claim 1 as being vague and indefinite.

With respect to claim 2, the examiner provides no additional analysis in support of the position that the term "negligible useful volume" is "vague and indefinite." The examiner has not given any reason why the objected to phrase is considered to be vague and indefinite. The specification describes what is meant by useful trunk volume, and the artisan should understand what is included within the recitation of occupying a negligible amount of this useful trunk space. We will not sustain the rejection of claim 2 as being vague and indefinite.

In summary, we have not sustained any of the rejections of claims 1-4 with respect to 35 U.S.C. § 112, second paragraph, so that the rejection of the claims under section 112 is reversed.

We now consider the rejection of claims 1-4 under 35 U.S.C. § 102(a) as anticipated by Newcomb. With respect to claim 1, the examiner notes that Newcomb assembles a woofer in the trunk rear of a car together with a fish tank [answer, page 3]. More particularly, the examiner asserts that in addition to four

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speakers mounted on the floor of the trunk, there is an additional fifth woofer shown in the corner of Newcomb's trunk. Appellants argue that there is no mention of such a fifth woofer in the Newcomb article [brief, pages 5-6]. The examiner also asserts that the four subwoofers which are located over the spare tire are "within the trunk" [answer, page 5]. Appellants respond that the spare tire compartment in the floor containing the four subwoofers in Newcomb is not the trunk [brief, page 7].

In considering the respective arguments noted above, we note that the propriety of the rejection of claim 1 under 35 U.S.C. § 102 revolves around two basic questions. First, we must determine if the speakers located in the covering of the spare tire compartment can be considered to be within the trunk. Second, we must determine if the noted fifth speaker in Newcomb is, in fact, a speaker. If our determination on either question results in a yes answer, then the invention of claim 1, as broadly recited, would be fully met by the teachings of Newcomb.

With respect to the first question noted above, we find ourselves in agreement with the examiner. That is, in our view, the four subwoofers in Newcomb can be considered to be within the trunk as that term is usually understood. Newcomb specifically states on page 29, last column that "bass from four 10-inch

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subwoofers in the trunk could enter the interior of the car through the fish tank" [emphasis added]. Newcomb also states on page 30, second column that "four a/d/s S10 10-inch subwoofers in the floor of the trunk can be covered" [emphasis again added]. Thus, it is clear that Newcomb considers the four subwoofers to be located within the trunk as the trunk area is generally understood. Thus, we do not agree with appellants' contention that these four subwoofers are in the spare tire compartment and, therefore, not in the trunk. The recitation of the at least one low frequency speaker recited in claim 1 is met by the subwoofers shown and described in Newcomb.

Our decision that the subwoofers of Newcomb meet the invention as broadly recited in claim 1 means that the rejection of claim 1 as anticipated by Newcomb is sustained. Since appellants indicated that claims 1-4 stand or fall together as noted supra, we sustain the rejection of claims 1-4 under 35 U.S.C. § 102.

Although it is now a moot point with respect to the ultimate decision in this appeal, we note for the record that our view of the second question posed above is that the examiner has failed to establish that there is a "fifth" speaker shown in the trunk of the vehicle described by Newcomb. There is no additional

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speaker mentioned as noted by appellants, and the drawings in the article are insufficient to conclusively show that the item pointed to by the examiner is in fact a speaker. We note that Newcomb states that two Phoenix Gold MS-2240 amplifiers are mounted on opposite trunk walls of the vehicle, and it may be one of these amplifiers that the examiner is pointing to. In any case, we would not decide a question of anticipation based upon conjecture and speculation as to what is disclosed within a reference. At any rate, the determination of this "fifth speaker" question is not material to the ultimate decision we have reached in this appeal.

In conclusion, the rejection of the claims under 35 U.S.C. § 112 was not sustained whereas the rejection of the claims under 35 U.S.C. § 102 was sustained. Therefore, the decision of the examiner rejecting claims 1-4 is affirmed.

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Application No. 07/871,926

No time period for taking any subsequent action in
connection with this appeal may be extended under 37 CFR
§ 1.136(a)..

AFFIRMED



ERROL A. KRASS)
Administrative Patent Judge)



JERRY SMITH)
Administrative Patent Judge)



LEE E. BARRETT)
Administrative Patent Judge)

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Appeal No. 94-2403
Application No. 07/871,926

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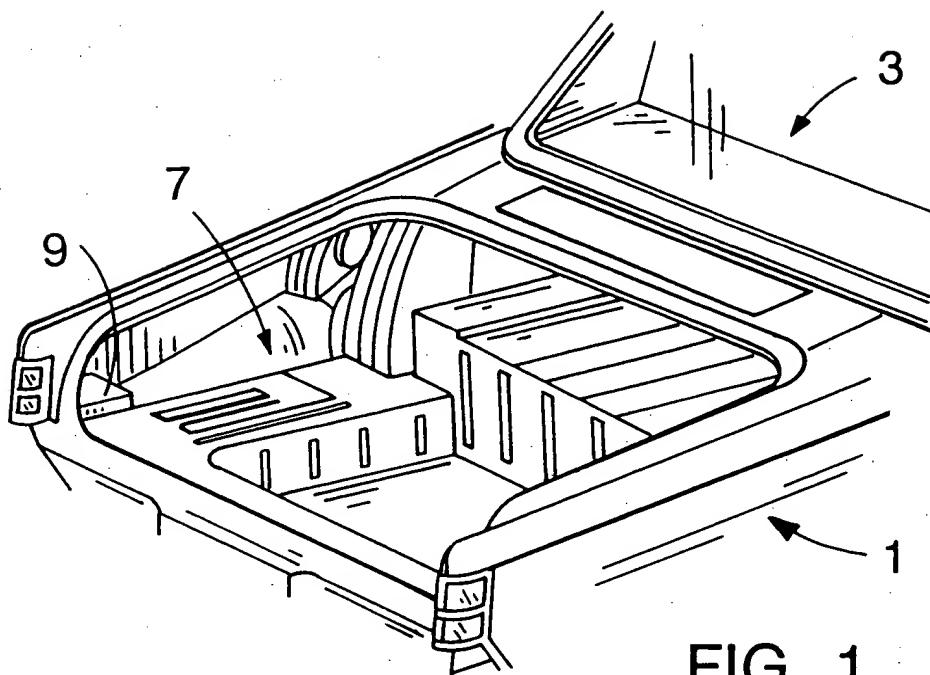


FIG. 1

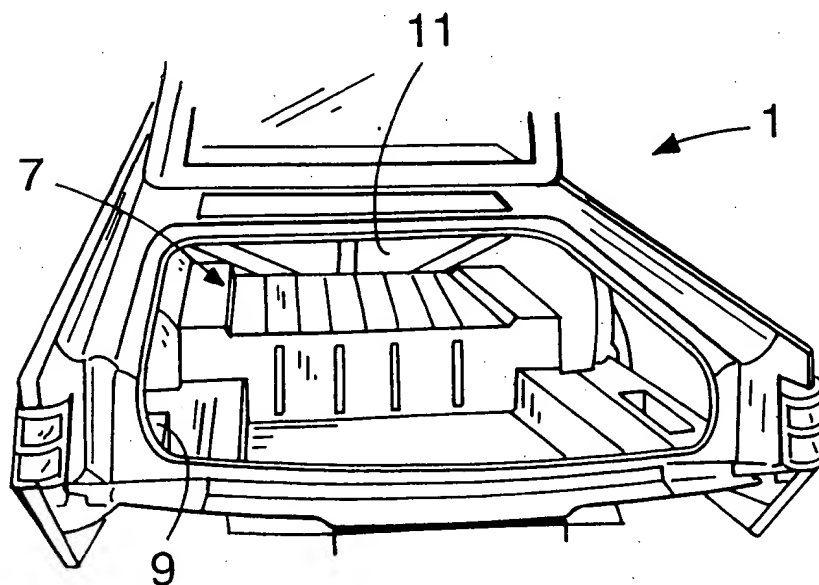


FIG. 2

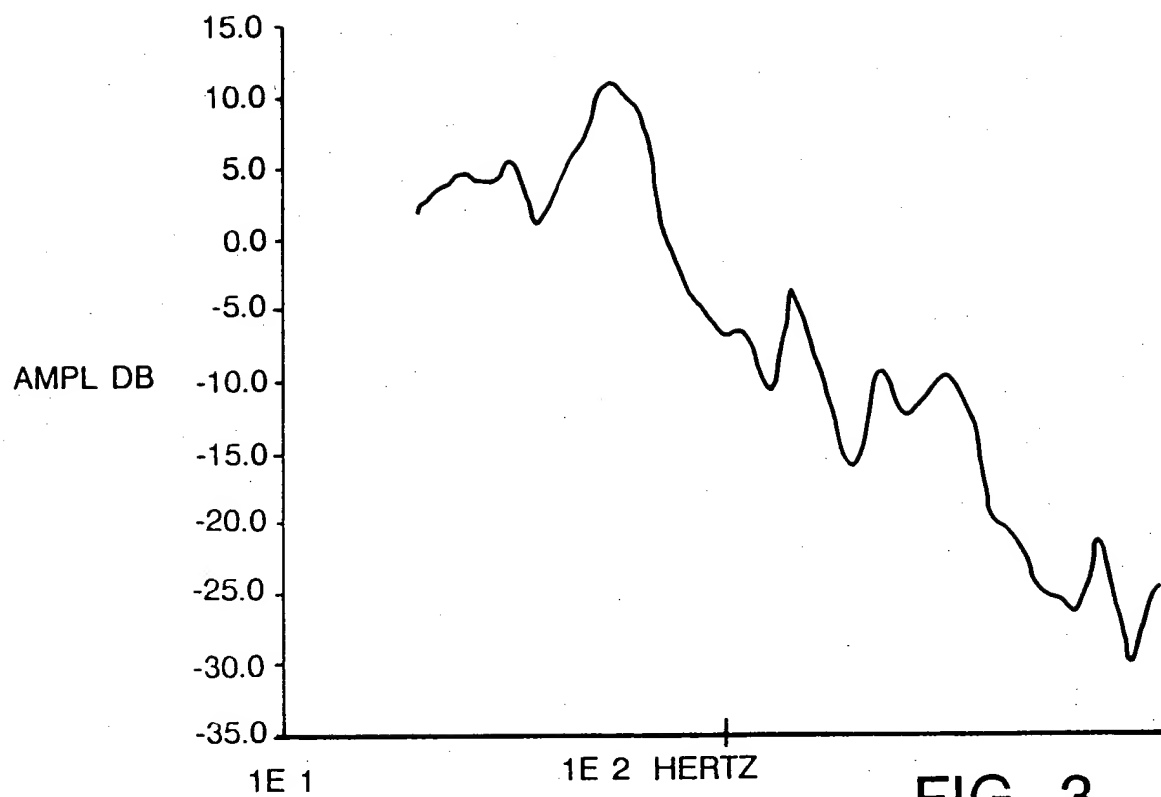
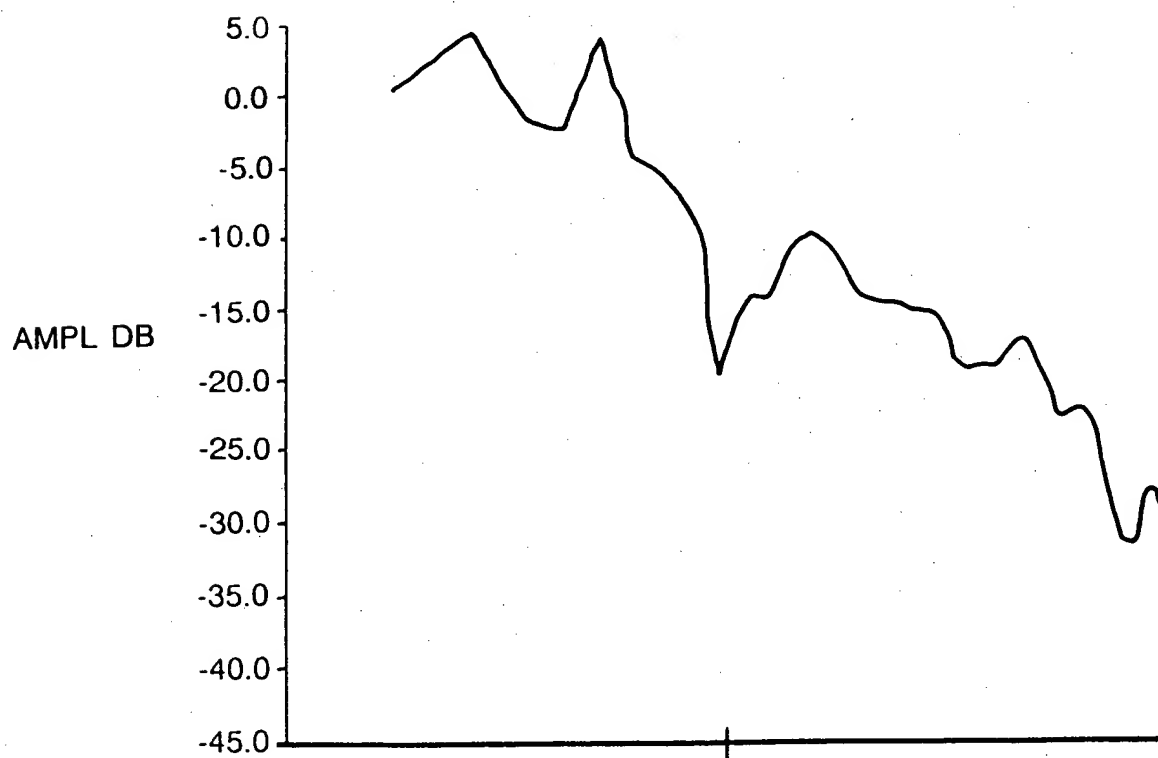


FIG. 3



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NEGLEGIBLE
SPACE

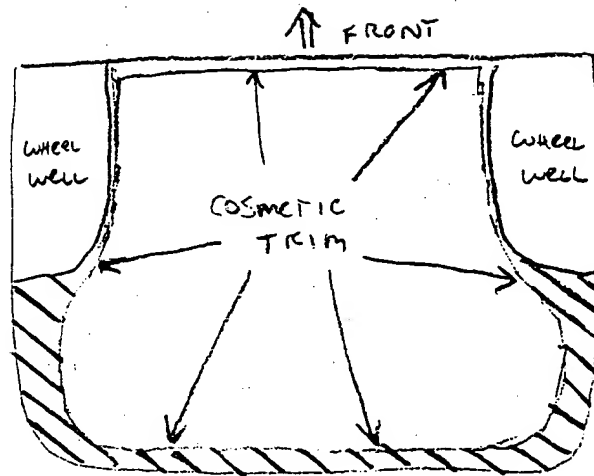


FIG. 5

TOP VIEW OF TRUNK

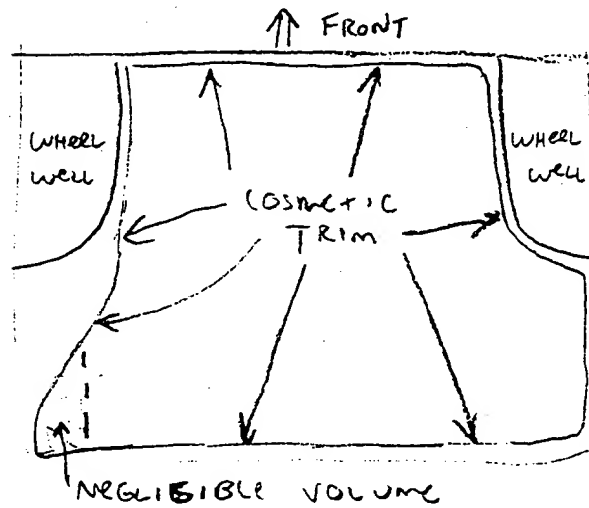
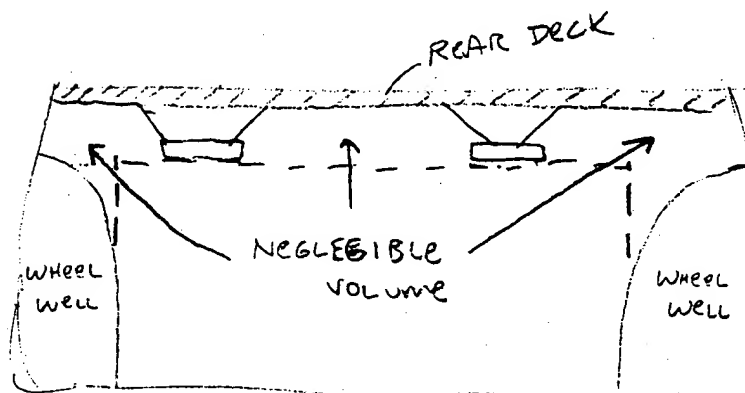


FIG. 6

TOP VIEW OF TRUNK



REAR
SIDE VIEW OF TRUNK

FIG. 7